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A NEW SPECIES OF *NEOPELTOPSIS* (COPEPODA, HARPACTICOIDA, PELTIDIIDAE) FROM ALTHORPE ISLAND, SOUTH AUSTRALIA

by G. K. WALKER-SMITH[1]

Summary

WALKER-SMITH, G. K. (2005) A new species of *Neopeltopsis* (Copepoda, Harpacticoida, Peltidiidae) from Althorpe Island, South Australia. *Trans. R. Soc. S. Aust.* **129**(2), 170-182, 30 November, 2005.

A new species of *Neopeltopsis* Hicks, 1976 is described from algae collected from Althorpe Island, South Australia. The new species is separated from its congeners by a number of morphological characters related to the A2, mandible, P1, P2, P5 and the male A1. A revised generic diagnosis for *Neopeltopsis* is provided and intra- and intergeneric relationships are discussed. The occurrence of other species of Peltidiidae, collected from algal washings from Althorpe I., is documented. *Neopeltopsis* appears to be restricted to the Southern Hemisphere, with previous records limited to New Zealand (*N. pectinipes* Hicks, 1976) and Argentina (*N. hicksi* Pallares, 1979).

KEY WORDS: Algae, Harpacticoida, *Neopeltopsis*, new species, Peltidiidae, South Australia.

Introduction

Harpacticoid copepods are microcrustaceans, usually less than 1 mm in length, that occur in marine, estuarine, and freshwater habitats. There are approximately 50 families and 460 genera of Harpacticoida and estimates of the total number of described species range between 3000 (Huys *et al.* 1996) and 4000 to 4500 (Giere 1993).

The Australian harpacticoid fauna is abundant and diverse, but remains largely undescribed. One hundred and thirty-three species of Harpacticoida have been recorded in Australia, with major contributions being made by Nicholls (1941, 1942, 1945a–c, 1957), Hamond (1971, 1973a–e, 1974, 1987), Harris (1994, 2002), Harris & Robertson (1994), Bartsch (1993, 1994, 1995, 1999) and Karanovic (2004). Thirty-one species have been recorded from South Australia, including 11 Australian endemics described by Nicholls (1941, 1942, 1945a) and Hamond (1971, 1973c, 1973e).

In February 2004, algal samples were gathered from Althorpe I., South Australia (SA) and harpacticoids living among the thalli were extracted. Among these harpacticoids, a new species of Peltidiidae Sars, 1904 belonging to the genus *Neopeltopsis* Hicks, 1976 was discovered. Worldwide, the family Peltidiidae consists of eight genera and 58 species. Species in this family are typically algal-dwellers, with dorsoventrally flattened bodies and modified appendages that enable them to exist on the surface of the algal thalli (Hicks 1986). Prior to the present study, six species of Peltidiidae were known to occur in SA: *Alteutha depressa* (Baird, 1837); *Alteutha spinicauda* Nicholls, 1941; *Parapeltidium cristatum* Nicholls, 1941; *Parapeltidium dubium* Nicholls, 1941; *Peltidium proximum* Nicholls, 1941 and *Peltidium simplex* Nicholls, 1941. *Peltidium speciosum* Thompson & A. Scott, 1903, was recorded in South Australia by Nicholls (1941); however, the validity of this species is doubtful; Wells & Rao (1987) believed it could not be distinguished from several other species of *Peltidium* Philippi, 1839. The only other species of Peltidiidae recorded from Australia is *Alteuthellopsis corallina* Humes, 1981, which was found associated with scleractinian corals in Queensland (Humes 1991).

This paper provides the description of a new species of *Neopeltopsis*, collected from Althorpe I., as well as a revised diagnosis of the genus. *Neopeltopsis* currently comprises only two species: *N. pectinipes* Hicks, 1976, recorded from New Zealand and *N. hicksi* Pallares, 1979 from waters off Argentina. The new species, described here, is separated from its congeners by morphological characters related to the A2, mandible, P1, P2, P5 and the male A1. This paper also documents the occurrence of other species of Peltidiidae found in algae collected from Althorpe I., SA.

Material and Methods

Algae were collected by hand. Algal samples were washed in a bucket of freshwater and this water was then poured through a 63 µm mesh sieve. Retained material was fixed in 95% ethanol and later transferred to 70% ethanol. Samples were examined

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under a Wild M8 stereomicroscope and harpacticoids were extracted using fine forceps. Harpacticoids were dissected in a drop of glycerol on a microslide using electrolytically-sharpened tungsten needles. Appendages were transferred to new microslides, mounted in Gurr's Aquamount and coverslips were sealed with clear nail varnish. Microslides were examined using either a Leitz Dialux 22 compound microscope with phase contrast or a Leica DMR compound microscope with interference contrast. Illustrations were made with the aid of a camera lucida. Selected specimens were examined using a Philips XL20 scanning electron microscope (SEM). These specimens were dehydrated in a graded ethanol series, critical point dried using CO_2 and gold coated prior to examination under the SEM (KV=10, spot size 3).

Terminology used follows Huys & Boxshall (1991). Abbreviations used are: A1, antennules or first antennae; ae, aesthetasc; A2, antennae or second antennae; Md, mandible; Mxl, maxillule; Mx, maxilla; Mxp, maxilliped; P1 – P4, swimming legs 1 – 4. Individual segments of P1 – P4 rami are written (for example) as P1 exopod-3, for the third (or terminal) segment of the P1 exopod. P5 and P6 refers to the fifth and sixth leg respectively. Total length measurements are from the tip of the rostrum to the posterior margin of the caudal rami (excluding caudal setae). Armature formulae for swimming legs are constructed following Lang's (1934) method (also see Huys & Boxshall 1991: 29). The term "armature" refers collectively to articulating elements such as setae and spines. All material examined is held in the collections of the South Australian Museum (SAM) and the Tasmanian Museum and Art Gallery (TMAG).

Neopeltopsis Hicks, 1976

Neopeltopsis Hicks 1976: 363–370.—Hicks 1986: 356, 360–361.

Diagnosis

Body distinctive, broad, dorsoventrally flattened with simple pattern of chitinous thickening. P1-bearing somite incorporated into large cephalosome; P2 – P5 somites free, epimeral plates well-developed; remaining abdominal somites fused, much shorter than prosome. Anal somite and caudal rami free. Urosome-caudal rami complex analogous to that of *Porcellidium* (Porcellidiidae Sars, 1904) (Hicks 1986). Rostrum broad, prominent, not defined at base; ♀ A1 8-segmented, ♂ A1 8 – 9 segmented. A2 exopod reduced, 1- or 2-segmented, with 2 or 4 setae in total; basis without, and endopod-1 with, abexopodal seta; endopod-2 with 1 lateral and 1 distal large, pectinate (comb-like) seta. Mandibular gnathobase elongate, palp with 1-segmented exopod and endopod. Maxillule arthrite (i.e. praecoxal endite) with 6 – 8 spinose spines on distal margin and 2 setae on anterior surface; coxal endite with 2 – 3 setae; basis elongate; exopod distinct, 1-segmented, with 2 – 3 setae; endopod incorporated into basis and represented by 2 – 3 setae. Maxilla with 3 syncoxal endites, proximal most widely separated, with 4, 2 and 3 setae respectively; endopod fused to basis (forming allobasis), endopod represented by 2 setae, allobasis with 1 spinose and 2 naked setae distally. Maxilliped subchelate; pedestal well-developed; syncoxa armed with 1 – 2 setae, basis expanded, ovoid with pad-like distal seta; endopod drawn out into elongate, narrow claw, sometimes with small setae on lateral surface of claw. P1 coxa and basis elongate, orientated at right angles; exopod 3-segmented, exopod-3 reduced, indistinctly separated from exopod-2, bearing 4 broadly flattened, pectinate setae, without accessory armature, geniculate seta absent; endopod 2-segmented, reduced, much shorter than exopod. P2 – P4 rami 3-segmented. Armature formulae for both sexes as follows:

	Exopod	Endopod
P2	0.1.22 (1 – 2)	0 – 1.0 – 1.(1 – 2) 20
P3	0.1.322	1.1.220
P4	0.1.322	1.1.220

P5 both sexes 2-segmented or sometimes indistinctly 2-segmented. Genital double somite and distal somites fused, expanded posterolaterally and almost surrounding the caudal rami. ♀ genital apparatus comprising paired genital apertures located ventrally on urosome, apertures covered by P6; copulatory pore located on ventral midline (slightly) posterior to genital apertures, covered by operculum. Eggs in single egg-sac. Caudal rami short and subrectangular with 7 setae, principal terminal setae distinct (i.e. not fused to one another at base). ♂ P6 left and right identical, large, lobe shaped; not known for *N. pectinipes* or *N. hicksi*. Male with 1(?)–2 spermatophores (not known for *N. hicksi*).

Sexual dimorphism in body size, A1, P1 and P5.

Species

Neopeltopsis pectinipes Hicks, 1976; *N. hicksi* Pallares, 1979; *Neopeltopsis* sp. nov. described herein.

Distribution

Wellington, New Zealand (Hicks 1976); Argentina (Atlantic Ocean and Tierra del Fuego) (Pallares 1979); Althorpe I., SA.

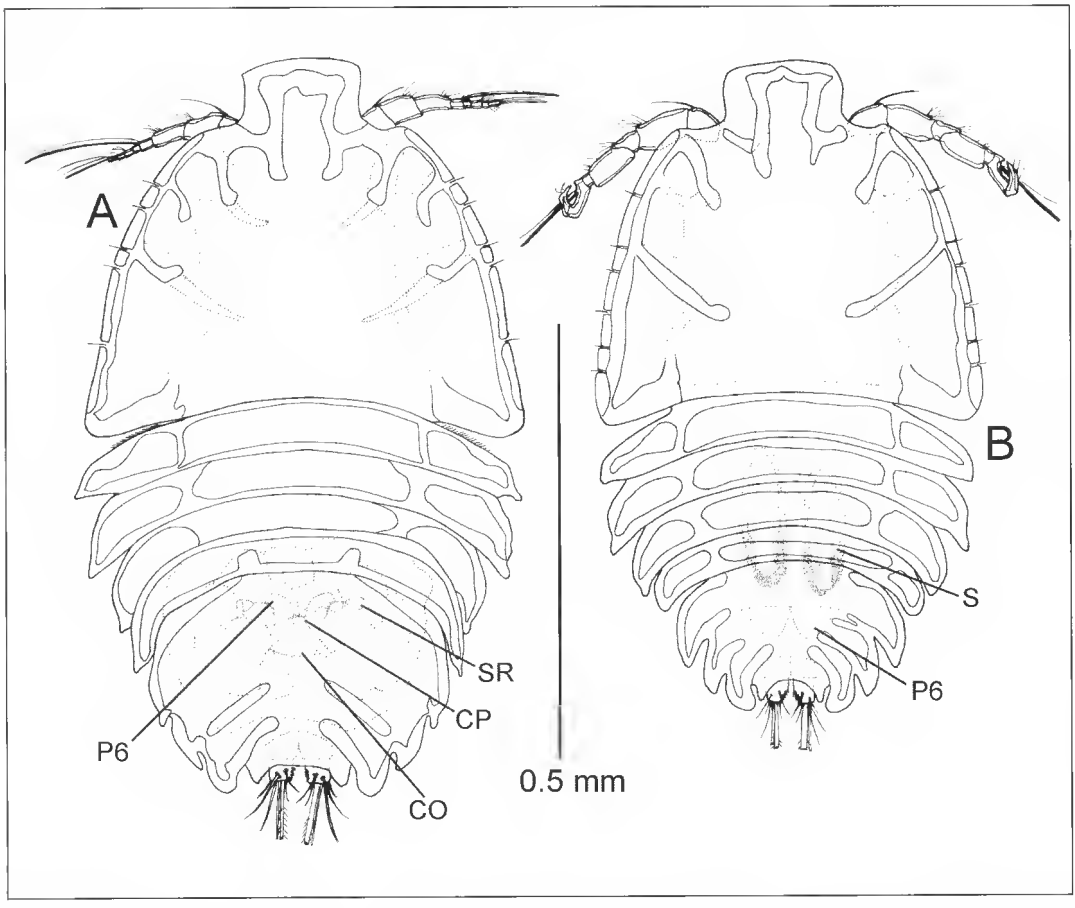

Fig. 1. *Neopeltopsis althorpensis* sp. nov.: A, ♀ habitus, dorsal (holotype, SAM C6219). B, ♂ habitus, dorsal (paratype, SAM C6220). Terminal caudal setae cut short. CO = copulatory operculum, CP = copulatory pore, SR = seminal receptacle, P6 = sixth leg, S = spermatophore.

Habitat

Phytal. Recorded from: *Pterocladia lucida*, *P. pinnata* and *Caulerpa brownii* in New Zealand; *Macrocystis* (Phaeophyta) and species in the family Delesseriaceae (Rhodophyta) off the coast of Argentina; *Pterocladia* sp. and *Lobospira bicuspidata* in SA.

Remarks

Herein the generic diagnosis of Hicks (1986) has been expanded to better define the genus.

Neopeltopsis althorpensis sp. nov.
(Figs 1 – 8)

Material examined

Holotype. Althorpe I., SA (35° 22.02′ S, 136° 51.08′ E), from washings of *Pterocladia* sp. (Rhodophyta), depth ~2 m, coll. A. J. Hirst, 01 Feb. 2004, SAM C6219 (ovigerous ♀, dissected, mounted on 9 slides).

Paratypes

Collected with holotype. SAM C6220 (1 ♂ in ethanol, allotype); SAM C6221 (1 ♂, dissected, mounted on 3 slides. P3 and P4 lost); TMAG G5474 (1 ♂, partially dissected, in ethanol; P2 mounted on 1 slide); TMAG G5475 (1 ♀, mounted on 1 slide); SAM C6222 (2 ovigerous ♀♀, 4 ♂♂, 1 juv., in ethanol); TMAG G5476 (2 ovigerous ♀♀, 1 non-ovigerous ♀, 3 ♂♂, 5 juv., in ethanol).

Other material

Collected with holotype. SAM C6223 (1 ♀ mounted on SEM stub), SAM C6224 (2 ♂♂, mounted on SEM stub).

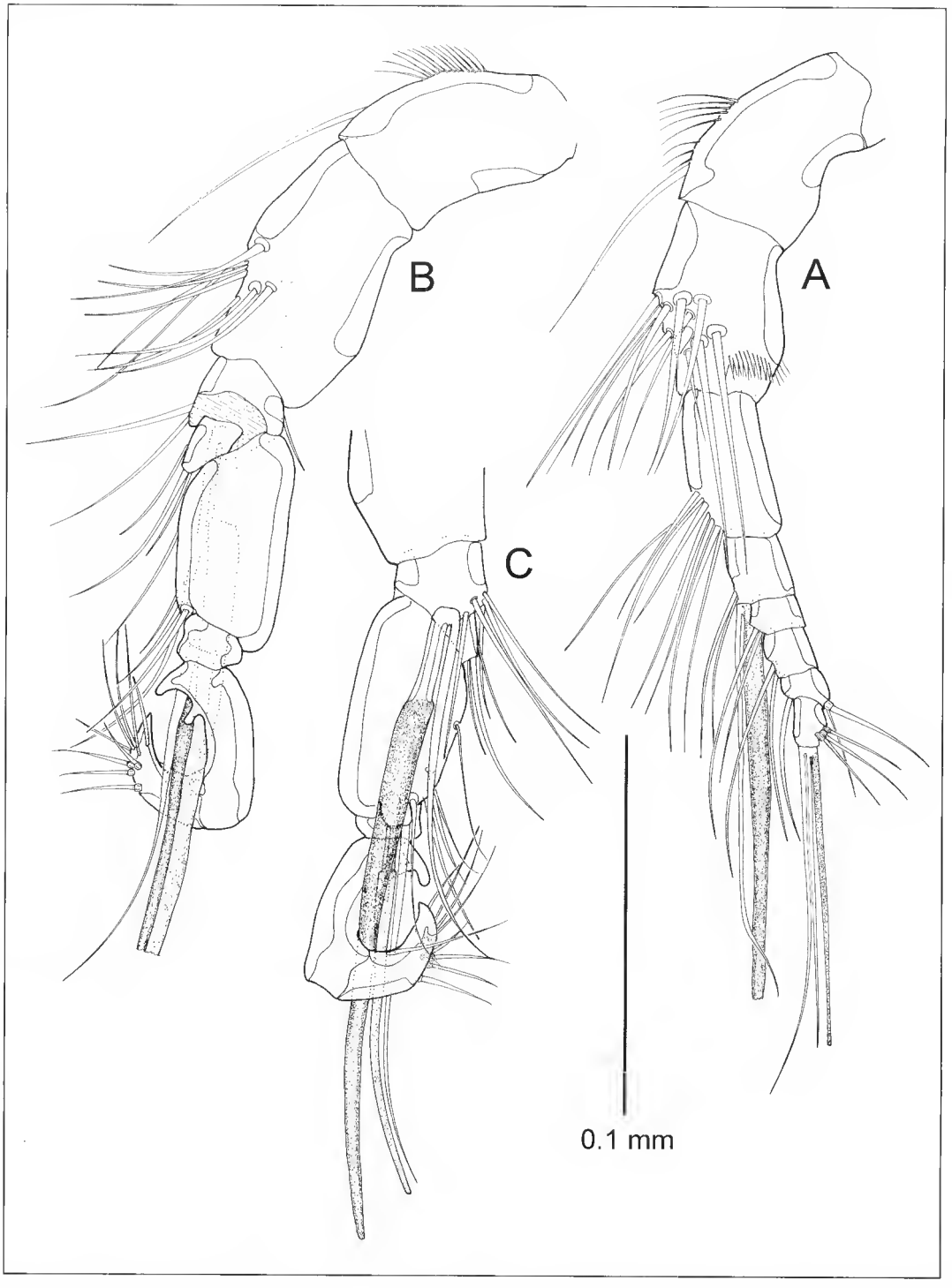

Fig. 2. *Neopeltopsis althorpensis* sp. nov.: A, ♀ A1, dorsal (holotype, SAM C6219). B, ♂ A1, dorsal (paratype, SAM C6220); C, ♂ A1, ventral (paratype, SAM C6220).

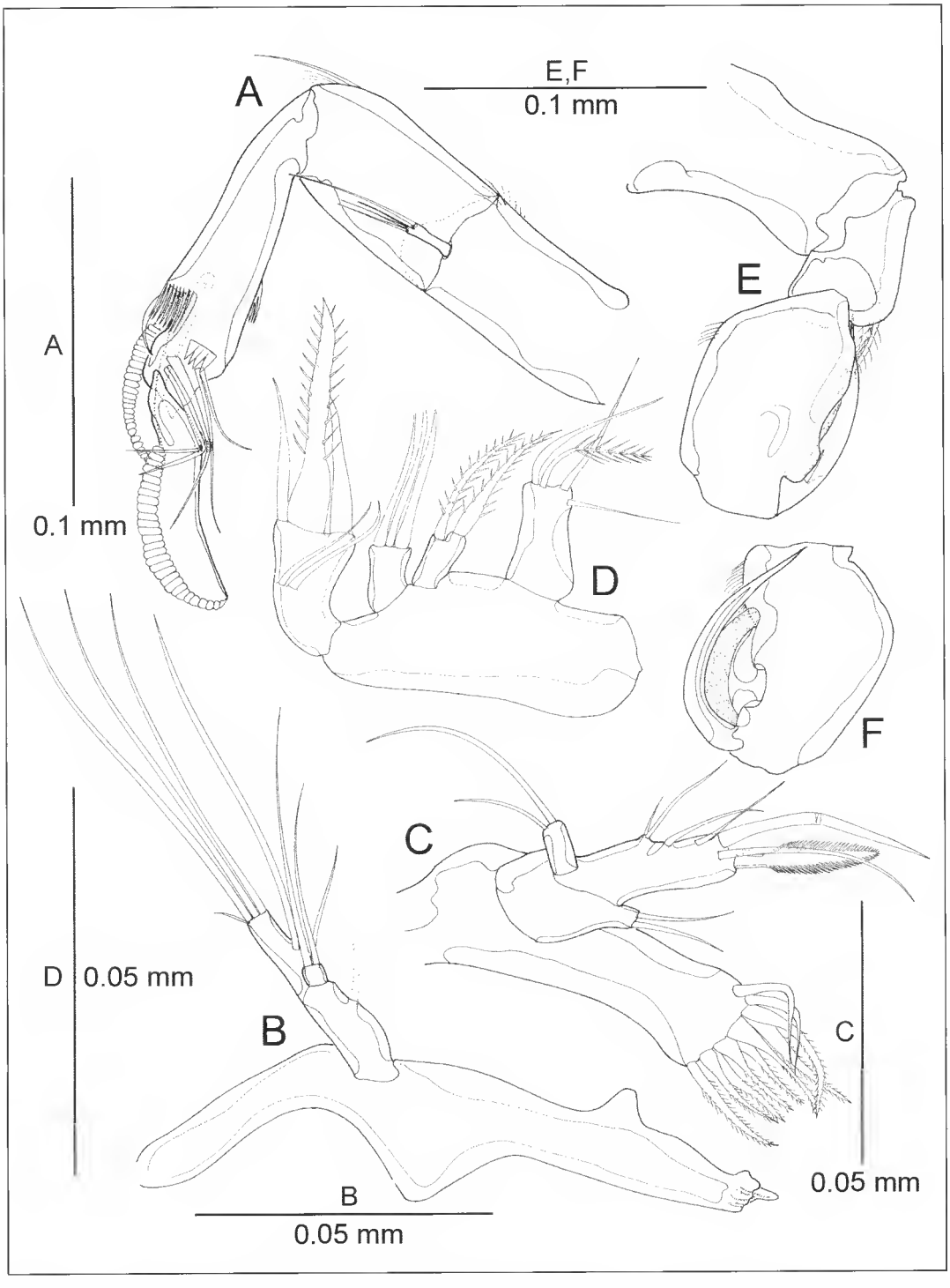

Fig. 3. *Neopeltopsis althorpensis* sp. nov., ♀ holotype, SAM C6219: A, A2; B, Md; C, Mxl; D, Mx; E, Mxp, anterior; F, Mxp, posterior (basis and endopod only).

Diagnosis

A1 ♂ with curved, thorn-like projections on segment 7. A2 exopod 1-segmented, with 4 setae. Mandible exopod length approximately equal to width. P1 exopod-2 0.25 size of exopod-1. P2 endopod-2 without inner seta. P2 exopod-3 with only 1 outer spine. P5 exopod partially fused to baseoendopod in both sexes.

Description of female

Mean total body length 0.86 mm ± 0.09 mm (n = 3). Body dorso-ventrally flattened, simple pattern of chitinous thickening (Fig. 1A), integument with numerous pores and sensillae (as found in male, see Fig. 7B). Caudal rami short and subrectangular, with 7 setae. Rostrum broad and prominent, fused at base (Fig. 1A). Caudal rami (Fig. 6C) length ≈ width; inner distal margin finely serrate; with 7 setae, seta I shortest, seta II dorsal to seta I, seta V well-developed and pinnate, seta VII dorsal and triarticulate at base.

A1 8-segmented (Fig. 2A); all seta bare. Segment 1 with 1 seta and few fine setules; segment 2 with 11 setae and some short setules; segment 4 with aesthetase fused basally to 1 seta; segment 8 with a shorter aesthetase fused basally to 2 setae (i.e. a acrothek). Armature formula for A1: 1-[1], 2-[11], 3-[8], 4-[3+(1+ae)], 5-[2], 6-[2], 7-[2], 8-[3+acrothek]

A2 (Fig. 3A) basis and endopod-1 separate; basis with few fine setules and unarmed; endopod-1 with 1 abexopodal seta; endopod-2 with 2 surface frills distally; lateral armature consisting of 1 pectinate spine, 1 spine and 2 setae basally fused; distally with 1 pectinate spine and 4 geniculate setae (innermost basally fused to naked seta); exopod 1-segmented, with 4 bare setae.

Labrum and paragnaths not illustrated.

Mandible (Fig. 3B) coxa narrow and elongate, expanding distally to small gnathobase; basis with 1 seta; exopod 1-segmented, small (about as long as wide), with 3 terminal setae; endopod with 1 short and 3 long setae distally and 1 proximal seta. All setae naked.

Maxillule (Fig. 3C) arthrite of praecoxa with 8 pinnate and 2 smooth setae; no setae observed on medial surface; coxal endite with 2 bare setae; basis elongate, with 5 smooth setae, 1 geniculate seta and 1 serrate spine; exopod 1-segmented, with 2 smooth setae; endopod completely incorporated into basal segment, but represented by 2 setae.

Maxilla (Fig. 3D) syncoxa with 3 endites; proximal endite with 4 setae; middle and distal endites with 2 spinulose setae and 3 bare setae respectively; allobasis bearing 1 pinnate spine and 2 naked setae; endopod completely incorporated and represented by 2 setae.

Maxilliped (Figs 3E – F, 8A) subchelate; pedestal well-developed; syncoxa smallest segment bearing 2 plumose setae; basis ovoid with a short, stout, pad-like seta with tiny spinules (arrowed in Fig. 8A); with few spinules proximally along the palmar margin; endopod drawn out into recurved claw, as long as basis, 2 small setae on lateral surface of the claw.

P1 (Figs 4A, 8C). Coxa without armature. Basis, inner seta inserted above endopod; with few spinules around insertion of outer basal seta and 1 tube pore on outer anterior surface and patch of tiny spinules as figured. Exopod 3-segmented; exopod-3 small and indistinctly separated from exopod-2; exopod-1 with smooth outer seta and patch of tiny denticles as figured; exopod-2 with bare outer seta dorsolaterally and inner seta strongly serrate and posteriorly displaced, with a patch of tiny denticles on the dorsal surface (arrowed in Fig. 8C); exopod-3 with 4 strongly pectinate flattened setae. Endopod reduced, 2-segmented; endopod-1 ~ 4 x length of endopod-2, without setae; endopod-2 tiny, with 3 bare setae.

P2 – P4 (Figs 4B, 5A – B) rami 3-segmented. Armature formulae as follows:

	Exopod	Endopod
P2	0.1.221	1.0.220
P3	0.1.322	1.1.220
P4	0.1.322	1.1.220

P2 (Fig. 4B). Praecoxa and coxa not illustrated, coxa with anterior pore. Basis elongate with bare outer seta. Exopod-1 with fine setae on inner margin and spinulose spine on laterodistal corner; exopod-2 with plumose inner seta and pinnate outer spine; exopod-3 shorter than 2 preceding segments, with 2 inner, plumose setae, 2 distal setae with spinules and setules and 1 pinnate outer spine. Endopod-1 with 1 inner seta and fine setules along outer margin; endopod-2 without setae; endopod-3 with 2 inner setae and 2 distal setae.

P3 (Fig. 5A). Praecoxa and coxa not illustrated. Basis transversely elongate, with bare outer seta. Exopod-1 with patch of fine spinules around distal outer corner, spinulose spine, no inner seta; exopod-2 with plumose inner and pinnate outer seta, with 1 anterior and 2 posterior spinule rows and a pore in the distal margin of the segment (arrowed in Fig. 5A); exopod-3 with 3 inner plumose setae (2 proximal most with additional pinnules), 2 distal setae with pinnules and setules, 2 pinnate outer spines, 2 spinule rows posteriorly. Endopod-1 with 1 plumose inner seta; endopod-2 with inner seta (broken off in holotype, present in paratype, position stippled in Fig. 5A); endopod-3 with 2 inner setae and 2 distal setae.

P4 (Fig. 5B). Praecoxa and coxa not illustrated.

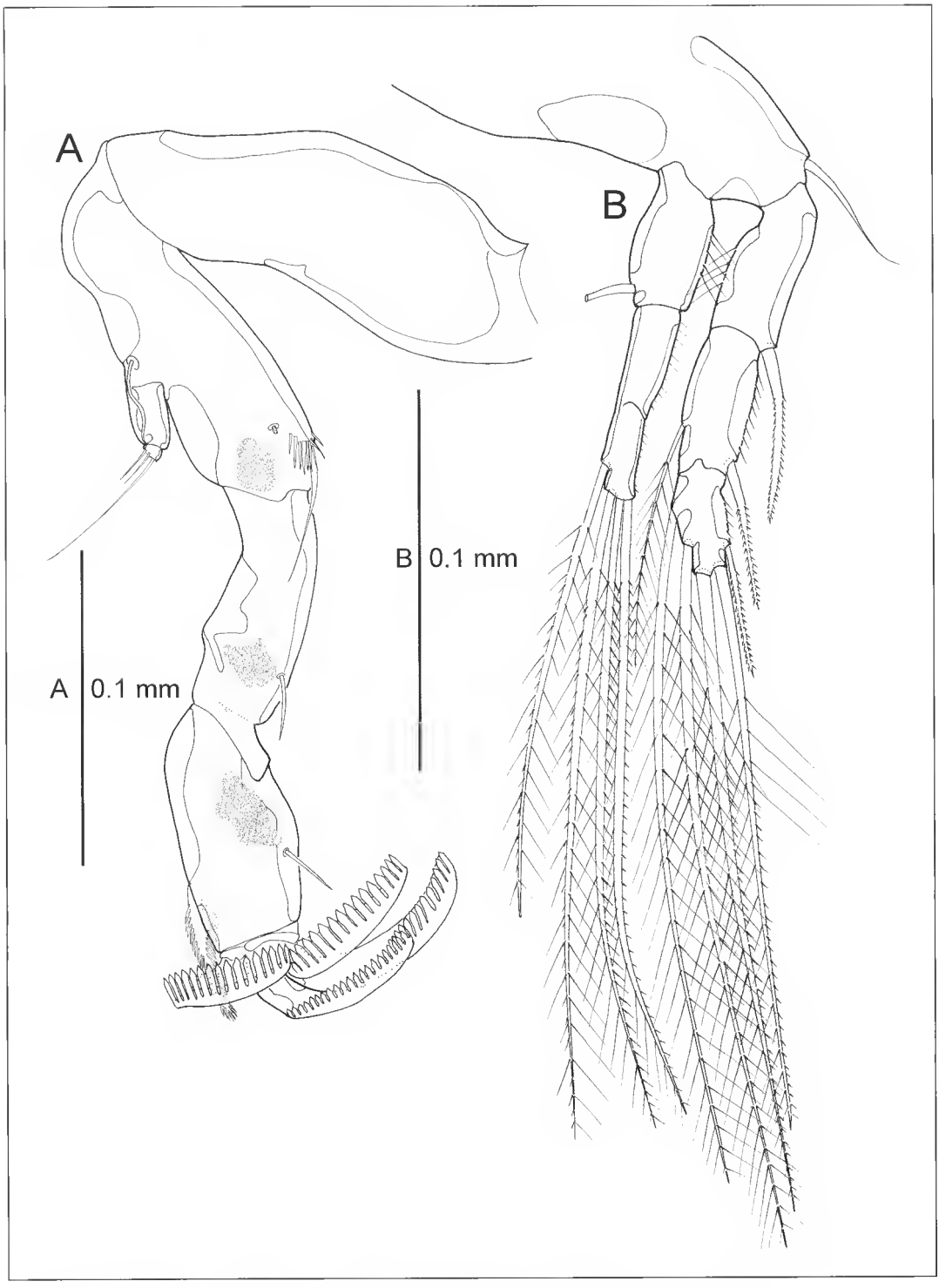

Fig. 4. *Neopeltopsis althorpensis* sp. nov., ♀ holotype, SAM C6219: A, P1 anterior; B, P2 anterior.

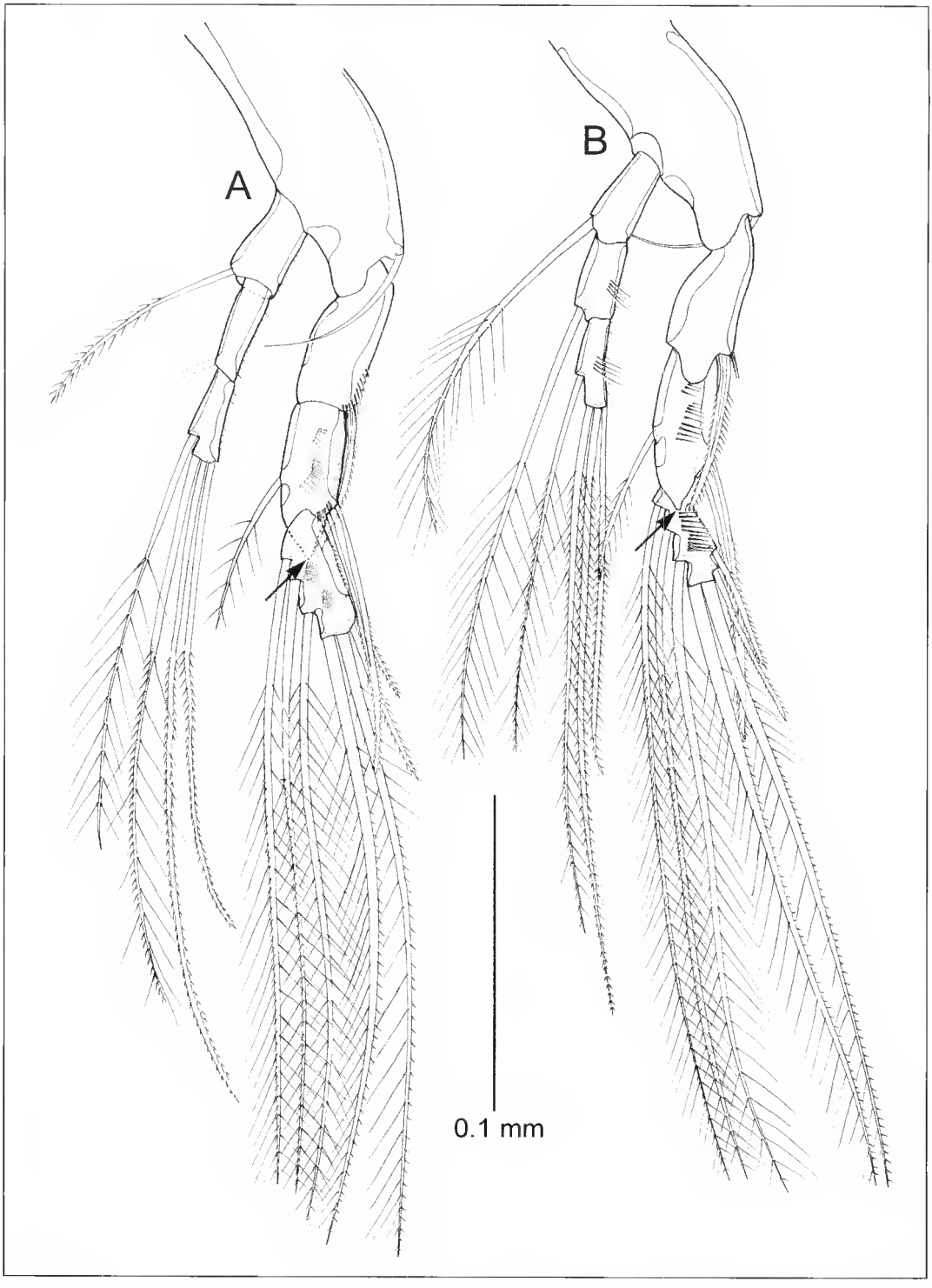

Fig. 5. *Neopeltopsis althorpensis* sp. nov., ♀ holotype, SAM C6219: A, P3 anterior; B, P4 posterior. Arrows indicate pore.

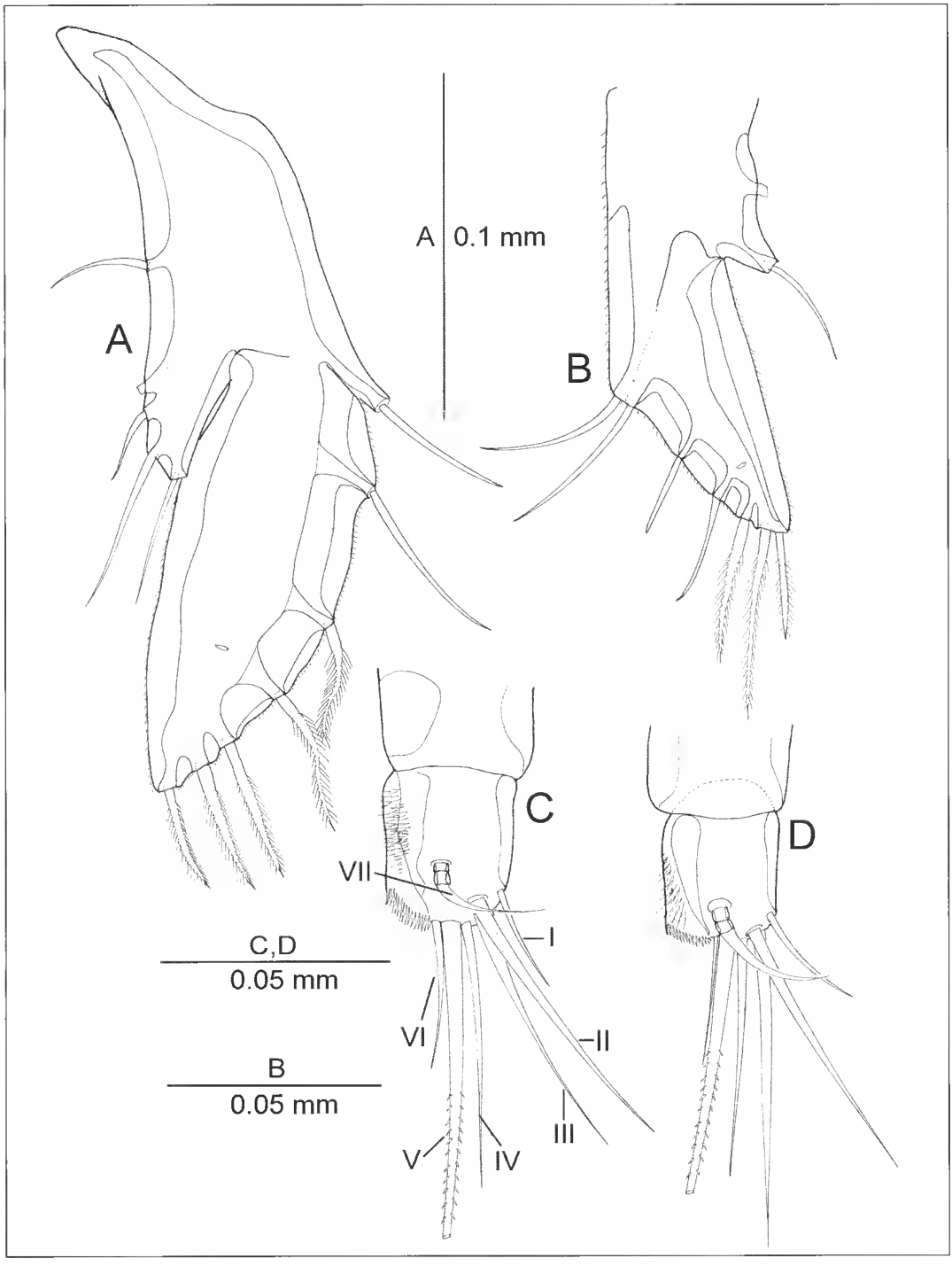

Fig. 6. *Neopeltopsis althorpensis* sp. nov.: A, ♀ P5 anterior (holotype, SAM C6219); B, ♂ P5 anterior (paratype, SAM C6221); C, ♀ right caudal ramus, dorsal (holotype, SAM C6219), setae numbered; D, ♂ right caudal ramus, dorsal (paratype, SAM C6220).

Basis elongate with 1 naked outer seta. Exopod-1 with pinnate outer spine; no inner seta; exopod-2 with 2 rows of small spinules, outer spine pinnate and elongate, nearly twice as long as entire exopod-2, inner seta plumose, 2 rows of spinules on posterior surface and a pore in the distal margin of the segment (arrowed in Fig. 5B); exopod-3 with 3 inner setae (proximal with additional row of pinnules), 2 distal setae, 2 pinnate outer spines, 2 inner, posterior spinule rows. Endopod-1 with 1 plumose inner seta; endopod-2 without seta; endopod-3 with 2 inner setae and 2 distal pinnate setae.

P5 (Fig. 6A) exopod partially fused to baseoendopod. Baseoendopod outer seta smooth and arising from sctophore; endopodal lobe with 4 bare setae and 1 tube pore. Exopod with 5 pinnate setae, 1 naked seta and 1 ventral porc.

P6 (Fig. 1A) small, kidney shaped, with 1 seta; covering genital apertures. Single copulatory pore (Fig. 1A) located on ventral midline (slightly) posterior to genital apertures, covered by operculum (Fig. 1A).

Description of male

Mean total body length 0.68 mm ± 0.05 mm (n = 5). Body (Figs 1B, 7A). Sexual dimorphism in body size, A1, P1 and P5. A1 (Figs 2B – C, 7C) haplocer, 8-segmented, segment 7 with 2 curved, thorn-like projections, aesthetases on segments 3 and 5. Armature formula for A1: 1-[1], 2-[11], 3-[5 + (1+ae)], 4-[2], 5-[5 + (1+ae)], 6-[0], 7-[0], 8-[9]. Oral appendages as in female. Swimming legs as for female except: ♂P1 proportionally longer than that of the female; extends to distal edge of caudal rami whereas ♀P1 only reaches to distal margin of egg sac. P5 (Fig. 6B) exopod partially fused to baseoendopod; outer basal setophore bearing 1 naked seta; endopodal lobe with 1 naked seta and 1 tube pore; exopod with 3 smooth and 3 spinulose setae; ventral exopodal surface with pore. P6 (Fig. 1B) left and right identical, large, semi-circular, without setae. Urosome with 2 spermatophores.

Etymology

The speeifie name *althorpensis* is derived from the type loeality, Althorpe I., SA.

Variability

The left P2 endopod-2 and endopod-3 of the holotype were partially fused along the inner margin but the right P2 endopod was clearly 3-segmented, which is the normal eondition. The left P5 of one of the male paratypes was smaller than the right one; the right P5 represented the normal size as it was the same size as both the left and right P5 in other male paratypes.

Remarks

This speeies was found (rarely) on *Lobospira bicuspidata* (Phaeophyta).

The family level diagnosis of Huys *et al.* (1996) and Boxshall & Halsey (2004) must be emended as *N. althorpensis* and *N. pectinipes* males have two spermatophores, not one.

Discussion

Neopeltopsis is distinguished from other Peltidiidae genera by two autapomorphies: the possession of four pectinate setae on the P1 exopod-3 and the medial fusion of the abdominal somites. No other charaeters are unique to just one genus of Peltidiidae (Hieks 1986), and for this reason *Neopeltopsis* ean be considered the best defined genus of the Peltidiidae. The possession of five armature elements on the P1 exopod-3 is considered the plesiomorphic condition and while there are other genera of Peltidiidae with four armature elements on the terminal segment of P1, they are not pectinate (i.e. *Peltidium* and *Parapeltidium* A. Seott, 1909). As the new species from Althorpe I. possesses four pectinate setae on the P1 exopod-3 and exhibits fusion of the abdominal somites, it is placed in the genus *Neopeltopsis*. In addition to these two apomorphies, *Neopeltopsis* shares many other character states with *N. hicksi* and *N. pectinipes*; however, it is separated from its congeners by:

1) A1 of male with two eurved, thorn-like projections on segment 7 (*N. pectinipes* with one thorn-like projection on segments 6 and 7; *N. hicksi* has only one projection on segment 7). Based on the illustrations of Hicks (1976) and Pallares (1979) it is assumed that the segmentation of the A1 of the male was misinterpreted. It is most probable that segment 4, a small sclerite, was mistakenly considered to be part of segment 3. It is also possible the terminal segment observed by Hicks (1976) is in fact fused to the preceding segment. If this is not the case, and Hieks (1976) did overlook the small somite which is segment 4, then the ♂A1 of *N. pectinipes* has 10 segments;
2) A2 exopod 1-segmented and with 4 setae (*N. pectinipes* 1-segmented with 2 setae; *N. hicksi* 2-segmented, endopod-1 with 1 seta and endopod-2 with 3 setae);
3) Mandible exopod length ≈ width (*N. pectinipes* length ~2 x width, i.e. cylindrieal; *N. hicksi* same as for *N. althorpensis*);
4) P1 exopod-2 0.25 size of exopod-1 (*N. pectinipes* 0.75 size of exopod-1; *N. hicksi* approximately cqual to exopod-1);
5) P2 endopod-2 without inner seta (*N. pectinipes* and *N. hicksi* with 1 inner seta);

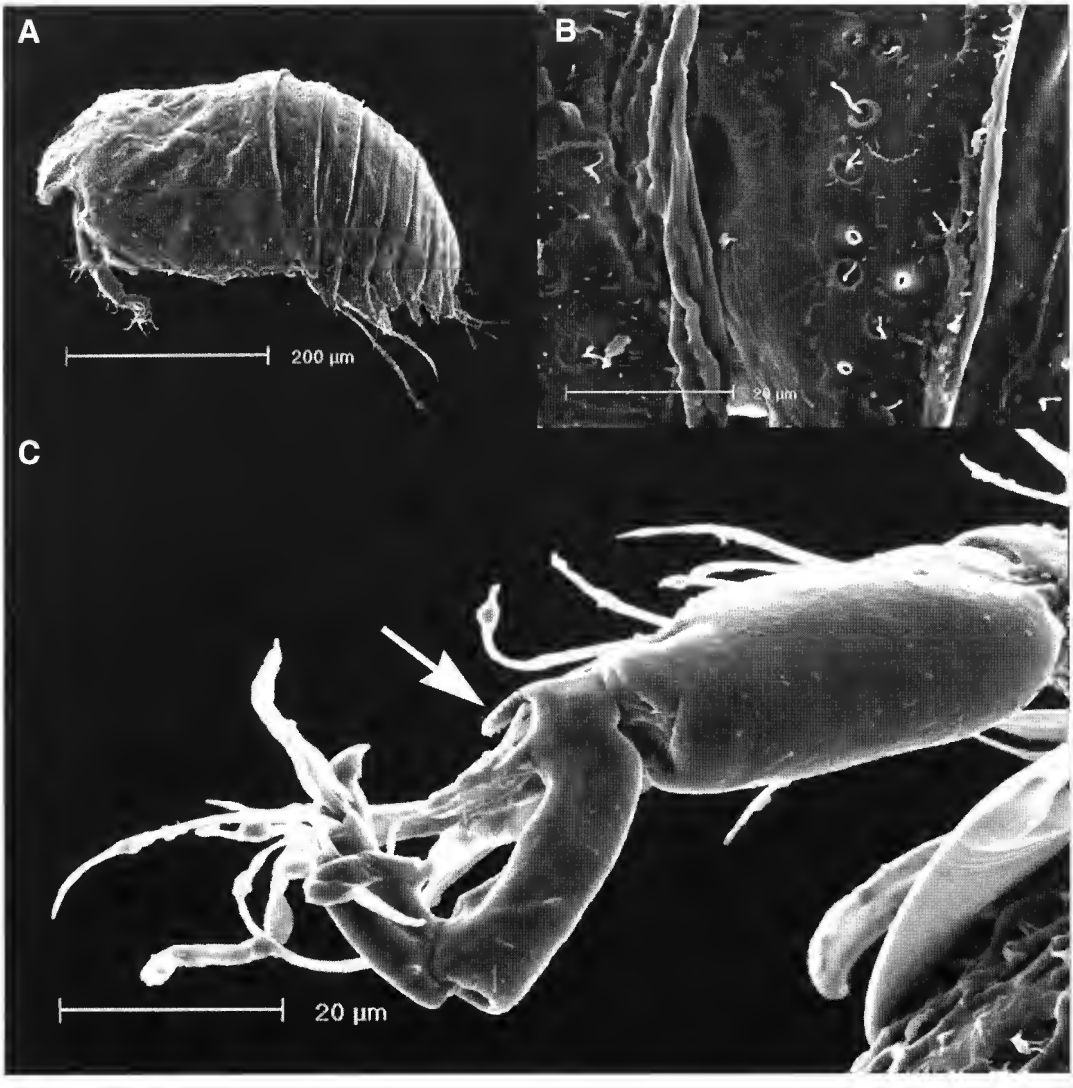

Fig. 7. *Neopeltopsis althorpensis* sp. nov., ♂ paratype, SAM C6224: A, habitus, dorsolateral; B, integument; C, A1, arrow indicates thorn-like projection.

6) P2 endopod-3 with four setae (*N. hicksi* has three and *N. pectinipes* has four);
7) P2 exopod-3 with only 1 outer spine (*N. pectinipes* and *N. hicksi* with 2 outer spines);
8) P5 exopod partially fused to baseoendopod in both sexes (not fused in *N. pectinipes* or *N. hicksi*).

The absence of an inner seta on P2 endopod-2 has not been reported for any other member of the Peltidiidae. Careful examination of male and female paratypes of *N. althorpensis* revealed all specimens lacked an inner seta on the P2 endodpod-2 and there was no scar to indicate the seta had broken away.

Fusion of the P5 baseoendopod and exopod has arisen independently in three other peltid genera: *Parapeltidium, Alteuthella* A. Scott, 1909 and *Alteuthellopsis* Lang, 1944 (Hicks 1986). Humes (1981) recorded the incomplete fusion of the P5 exopod and baseoendopod in *Alteuthellopsis corallina* but Hicks (1986) believed this to be an illusion created by the orientation of the slide mount, which disappeared when the limb was rotated. This does not appear to be the case for *N. althorpensis*. All paratypes examined exhibited partial fusion of the P5 baseoendopod and exopod.

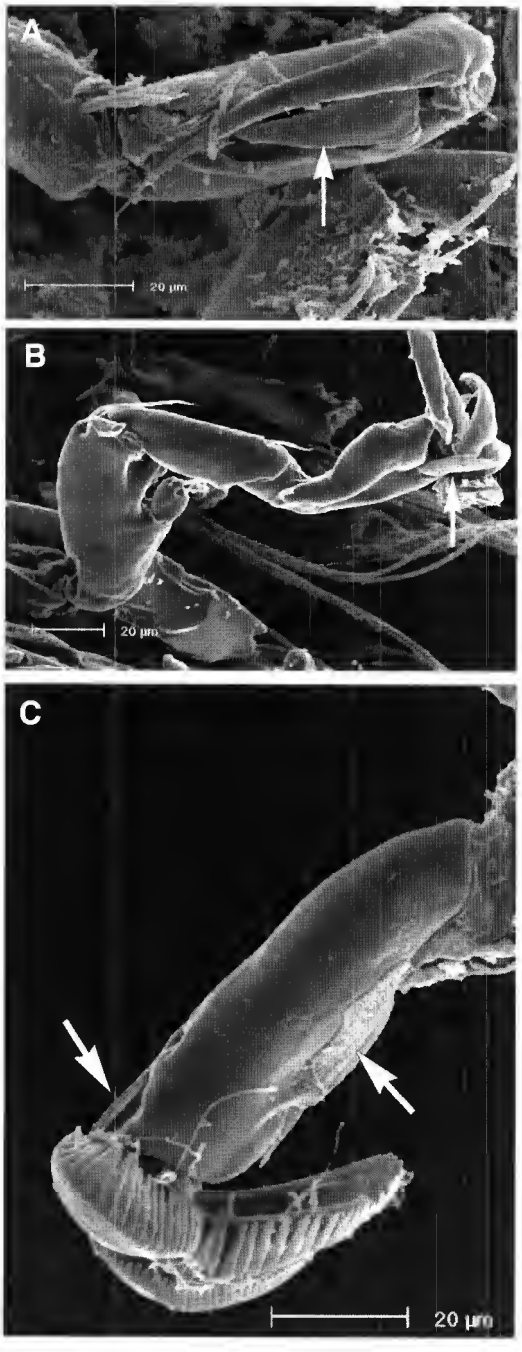

Fig. 8. *Neopeltopsis althorpensis* sp. nov.: A, ♀ Mxp (paratype, SAM C6223), arrow indicates pad-like seta; B, ♂ P1, arrow indicates ventral pectinate spine (paratype, SAM C6224); C, ♀ P1, left arrow indicates ventral pectinate spine, right arrow indicates patch of tiny denticles (paratype, SAM C6223).

Based on the following apomorphic characters; the fusion of the A2 exopod segments, the reduced size of the P1 exopod, the reduction in setation of P2 endopod-2 and exopod-3, and the partial fusion of the P5 exopod and baseoendopod, it is suggested that *N. althorpensis* is the most derived species of *Neopeltopsis* (currently). *Neopeltopsis althorpensis* appears to be most closely related to *N. pectinipes*, sharing one apomorphic character state: A2 exopod 1-segmented. With a 2-segmented A2 exopod, *N. hicksi* can be considered the least derived within the genus; however, this species does possess an advanced character state: 3 setae on the P2 endopod-3 instead of 4, as found in *N. althorpensis* and *N. pectinipes*.

Hicks (1986) suggested *Neopeltopsis* was most closely related to *Eupelte* Claus, 1860 and *Alteuthellopsis* since they all had a 2-segmented P1 endopod (see Hicks 1986; Fig. 4). Hicks (1986) also believed *Neopeltopsis* and *Alteuthellopsis* were related by the possession of two outer spines on the exopod-3 of P2–P4. Strictly speaking, this character state can no longer define the terminal clade of *Neopeltopsis* and *Altheuthellopsis* because the P2 exopod-3 of *N. althorpensis* only has one outer spine. However, since *Neopeltopsis* and *Altheuthellopsis* both possess <3 spines on the P2 exopod-3 and have two outer spines on the exopod of P3 and P4, this clade still stands. Relationships between the other peltid genera, as suggested by Hicks (1986), also remain unchanged.

Neopeltopsis althorpensis is the first species of *Neopeltopsis* recorded from Australia and the first species of Peltidiidae described since *Alteutha polarsternae* Dahms, 1992 was described from the Weddell Sea (Antarctica).

In addition to *N. althorpensis*, five other species of Peltidiidae were collected from Althorpe I., SA: *Peltidium simplex, Alteutha depressa*, and three new species of *Alteutha*, which will be described in a future paper.

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